

# Permabond®

Engineering Adhesives

## SAFETY DATA SHEET

### Permabond ET5401A

#### 1. Identification

##### Product identifier

**Product name** Permabond ET5401A

##### Recommended use of the chemical and restrictions on use

**Application** Adhesive.

##### Details of the supplier of the safety data sheet

**Supplier** Permabond LLC  
 14 Robinson Street  
 Pottstown, PA 19464  
 USA  
 Telephone: 732-868-1372 or 800-640-7599  
 Website: www.permabond.com

##### Emergency telephone number

**Emergency telephone** Medical: Poison Control Center 866-827-6282 (toll free) or 303-389-1109 Transport: CHEMTREC 800-424-9300

#### 2. Hazard(s) identification

##### Classification of the substance or mixture

**OSHA Regulatory Status** Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Physical hazards** Not Classified

**Health hazards** Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Skin Sens. 1 - H317

##### Label elements

##### Hazard symbols



**Signal word** Warning

**Hazard statements** H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H317 May cause an allergic skin reaction.

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<b>Precautionary statements</b>	<p>P261 Avoid breathing vapor/ spray.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P272 Contaminated work clothing must not be allowed out of the workplace.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P302+P352 If on skin: Wash with plenty of water.</p> <p>P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P321 Specific treatment (see medical advice on this label).</p> <p>P332+P313 If skin irritation occurs: Get medical advice/ attention.</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.</p> <p>P337+P313 If eye irritation persists: Get medical advice/ attention.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p>
<b>Contains</b>	EPOXY RESIN (Number average MW ≤ 700 ), TRIMETHYLOL ETHANE TRIGLYCIDYL ETHER POLYMER, 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

### 3. Composition/information on ingredients

#### Mixtures

<b>EPOXY RESIN (Number average MW ≤ 700 )</b>	<b>60-100%</b>
CAS number: 1675-54-3	
<b>Classification</b>	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
Skin Sens. 1 - H317	
Not relevant.	
<b>TRIMETHYLOL ETHANE TRIGLYCIDYL ETHER POLYMER</b>	<b>5-10%</b>
CAS number: 68460-21-9	
REACH registration exemption – POLYMER	
<b>Classification</b>	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
Skin Sens. 1 - H317	
Not relevant.	
<b>2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL</b>	<b>5-10%</b>
CAS number: 1384855-91-7	
<b>Classification</b>	
Eye Irrit. 2A - H319	
Skin Sens. 1 - H317	
Not relevant.	

The full text for all hazard statements is displayed in Section 16.

**Composition comments** Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

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### 4. First-aid measures

#### Description of first aid measures

<b>Inhalation</b>	Move the exposed person to fresh air. Get medical attention if any discomfort continues.
<b>Ingestion</b>	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention if any discomfort continues.
<b>Skin Contact</b>	Remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms develop, obtain medical attention
<b>Eye contact</b>	Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Remove any contact lenses and open eyelids wide apart. Get medical attention if any discomfort continues.

#### Most important symptoms and effects, both acute and delayed

<b>Skin contact</b>	Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes serious eye irritation.

#### Indication of immediate medical attention and special treatment needed

<b>Notes for the doctor</b>	No specific recommendations. Treat symptomatically.
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### 5. Fire-fighting measures

#### Extinguishing media

<b>Suitable extinguishing media</b>	Extinguish with foam, carbon dioxide, dry powder or water fog.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.

#### Special hazards arising from the substance or mixture

<b>Hazardous combustion products</b>	Burning produces irritating, toxic and obnoxious fumes. Carbon monoxide, carbon dioxide, and unknown hydrocarbons.
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#### Advice for firefighters

<b>Protective actions during firefighting</b>	Use water to keep fire exposed containers cool and disperse vapors.
<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Wear protective clothing as described in Section 8 of this safety data sheet.
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#### Environmental precautions

<b>Environmental precautions</b>	Avoid the spillage or runoff entering drains, sewers or watercourses.
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#### Methods and material for containment and cleaning up

<b>Methods for cleaning up</b>	Absorb spillage with sand or other inert absorbent. Transfer to suitable, labelled containers for disposal.
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<b>Reference to other sections</b>	For personal protection, see Section 8. For waste disposal, see section 13.
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### 7. Handling and storage

#### Precautions for safe handling

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**Usage precautions** Avoid contact with skin, eyes and clothing. Do not breathe vapour/spray. Wash hands thoroughly after handling. Keep container tightly sealed when not in use.

### Conditions for safe storage, including any incompatibilities

**Storage precautions** Store in tightly-closed, original container in a dry, cool and well-ventilated place.

### Specific end uses(s)

**Specific end use(s)** Adhesive.

## 8. Exposure controls/Personal protection

**Ingredient comments** WEL = Workplace Exposure Limits

### Exposure controls

**Appropriate engineering controls** Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

**Eye/face protection** Wear tight-fitting, chemical splash goggles or face shield.

**Hand protection** Nitrile rubber or Viton™ gloves are recommended. Cotton or other absorbent gloves should not be worn.

**Other skin and body protection** Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.

**Hygiene measures** Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated.

**Respiratory protection** Respiratory protection may be required if excessive airborne contamination occurs. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

**Appearance** Paste.

**Color** White.

**Odor** Mild.

**Odor threshold** No information available.

**pH** Not relevant.

**Melting point** Not available.

**Initial boiling point and range** Not relevant.

**Flash point** >100°C

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

**Upper/lower flammability or explosive limits** Not available.

**Vapor pressure** Not available.

**Vapor density** Not available.

**Relative density** 1.2 @ 23°C

**Solubility(ies)** Insoluble in water. Soluble in the following materials: Organic solvents.

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<b>Partition coefficient</b>	Not available.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition Temperature</b>	Not available.
<b>Viscosity</b>	~350,000 cP @ 23°C Thixotropic
<b>Explosive properties</b>	Not relevant.
<b>Oxidizing properties</b>	Not applicable.
<b>Other information</b>	Not relevant.
<b>Volatile organic compound</b>	<2 %, 20 grams/liter (Estimated)

### 10. Stability and reactivity

<b>Reactivity</b>	The following materials may react with the product: Strong oxidizing agents. Acids.
<b>Stability</b>	Stable at normal ambient temperatures. Polymerizes when heated.
<b>Possibility of hazardous reactions</b>	Reactions with the following materials may generate heat: Amines.
<b>Conditions to avoid</b>	Do not store near heat sources or expose to high temperatures.
<b>Materials to avoid</b>	Amines. Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Thermal decomposition could produce carbon monoxide, carbon dioxide, and unidentified organic compounds.

### 11. Toxicological information

#### Information on toxicological effects

<b>Toxicological effects</b>	The toxicological properties of this product have not been fully evaluated. Use of good industrial hygiene practices is required. Avoid direct contact with skin or eyes. Do not ingest or inhale.
<b><u>Skin corrosion/irritation</u></b>	
<b>Skin corrosion/irritation</b>	Irritating to skin.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Causes serious eye irritation.
<b><u>Skin sensitization</u></b>	
<b>Skin sensitization</b>	May cause sensitisation by skin contact.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	Based on available data the classification criteria are not met.
<b>Genotoxicity - in vivo</b>	Based on available data the classification criteria are not met.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	No component of this product present at levels great than or equal to 0.1% is identified as a known carcinogen.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	Based on available data the classification criteria are not met.

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**Reproductive toxicity - development** Does not contain any substances known to be toxic to reproduction.

### Specific target organ toxicity - single exposure

**STOT - single exposure** Based on available data the classification criteria are not met.

### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** Based on available data the classification criteria are not met.

### Aspiration hazard

**Aspiration hazard** Based on available data the classification criteria are not met.

**Inhalation** Unlikely to be hazardous by inhalation because of the low vapor pressure of the product at ambient temperature. In high concentrations, vapors may irritate throat and respiratory system and cause coughing.

**Ingestion** No harmful effects expected from quantities likely to be ingested by accident.

**Skin Contact** Irritating to skin.

**Eye contact** Irritating and may cause redness and pain.

**Acute and chronic health hazards** This product is moderately irritating. May cause sensitisation by skin contact.

**Target Organs** Eyes Skin

### Toxicological information on ingredients.

#### EPOXY RESIN (Number average MW <= 700 )

##### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 11,400.0

**Species** Rat

##### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 2,000.1

**Species** Rabbit

##### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** No specific test data are available.

##### Skin corrosion/irritation

**Skin corrosion/irritation** Not irritating.

**Animal data** Edema score: Very slight oedema - barely perceptible (1).

##### Serious eye damage/irritation

**Serious eye damage/irritation** Not irritating.

##### Respiratory sensitization

**Respiratory sensitization** No specific test data are available.

##### Skin sensitization

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<b>Skin sensitization</b>	Local Lymph Node Assay (LLNA) - Mouse: Sensitizing.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	Conclusive data but not sufficient for classification.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	Conclusive data but not sufficient for classification.
<b>IARC carcinogenicity</b>	IARC Group 3 Not classifiable as to its carcinogenicity to humans.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	Fertility - NOAEL 750 mg/kg/day, Oral, Rat
<b>Reproductive toxicity - development</b>	Developmental toxicity: - NOAEL: 180 mg/kg/day, Oral, Rat
<b><u>Specific target organ toxicity - single exposure</u></b>	
<b>STOT - single exposure</b>	No specific test data are available.
<b><u>Specific target organ toxicity - repeated exposure</u></b>	
<b>STOT - repeated exposure</b>	Conclusive data but not sufficient for classification.
<b><u>Aspiration hazard</u></b>	
<b>Aspiration hazard</b>	Based on available data the classification criteria are not met.

### TRIMETHYLOL ETHANE TRIGLYCIDYL ETHER POLYMER

<b><u>Acute toxicity - oral</u></b>	
<b>Notes (oral LD<sub>50</sub>)</b>	No specific test data are available.
<b><u>Acute toxicity - dermal</u></b>	
<b>Notes (dermal LD<sub>50</sub>)</b>	No specific test data are available.
<b><u>Acute toxicity - inhalation</u></b>	
<b>Notes (inhalation LC<sub>50</sub>)</b>	No specific test data are available.
<b><u>Skin corrosion/irritation</u></b>	
<b>Skin corrosion/irritation</b>	Causes skin irritation.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Causes serious eye irritation.
<b><u>Skin sensitization</u></b>	
<b>Skin sensitization</b>	Sensitizing.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	No specific test data are available.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	No specific test data are available.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	No specific test data are available.

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### Specific target organ toxicity - single exposure

**STOT - single exposure** Not classified as a specific target organ toxicant after a single exposure.

### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** No specific test data are available.

### Aspiration hazard

**Aspiration hazard** Based on available data the classification criteria are not met.

## 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 2,000.1

**Species** Rat

### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 2,000.1

**Species** Rabbit

### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** No information available.

### Skin corrosion/irritation

**Animal data** Rabbit Not irritating.

### Serious eye damage/irritation

**Serious eye damage/irritation** Rabbit Irritating to eyes.

### Skin sensitization

**Skin sensitization** Local Lymph Node Assay (LLNA) - Mouse: Sensitizing.

### Germ cell mutagenicity

**Genotoxicity - in vitro** Gene mutation: Negative.

**Genotoxicity - in vivo** Chromosome aberration: Negative.

### Carcinogenicity

**Carcinogenicity** No information available.

### Reproductive toxicity

**Reproductive toxicity - fertility** - NOAEL 200 mg/kg, Oral, Rat F1

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: 10 mg/kg, Oral, Rat

### Specific target organ toxicity - single exposure

**STOT - single exposure** NOAEL 75 mg/kg, Oral, Rat

### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** NOAEL 75 mg/kg, Oral, Rat



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### Aspiration hazard

**Aspiration hazard**                      No information available.

### 12. Ecological information

**Toxicity**                                      No data available.

### Bioaccumulative potential

**Partition coefficient**                      Not available.

### Other adverse effects

**Other adverse effects**                      None known.

### 13. Disposal considerations

#### Waste treatment methods

**General information**                      Empty containers may contain product residue; follow SDS and label warnings even after they have been emptied.

**Disposal methods**                         Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations

### 14. Transport information

**Sea transport notes**                      Applies only to inner containers >5 litres. See 2.10.2.7 of the IMDG code.

**Air transport notes**                        Applies only to inner containers >5 liters. See SP A197 (375)

**DOT transport notes**                      Applies only to inner containers >5 liters. See CFR 49173.155 and 172.102.173

#### UN Number

**UN No. (International)**                      3082

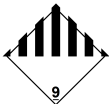
#### UN proper shipping name

**Proper shipping name (International)**                      Environmentally hazardous substance, liquid, n.o.s. (contains Epoxy resin)

#### Transport hazard class(es)

**Transport Labels (International)**                      9

#### Transport labels



#### Packing group

**Packing group (International)**                      III

#### Environmental hazards

**Environmentally Hazardous Substance**



### 15. Regulatory information

## Permabond ET5401A

### US Federal Regulations

#### **SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

None above reporting levels

#### **CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)**

None above reporting limits

#### **SARA Extremely Hazardous Substances EPCRA Reportable Quantities**

None above reporting limits

#### **SARA 313 Emission Reporting**

None above reporting limits

#### **SARA (311/312) Hazard Categories**

Acute  
Chronic

### US State Regulations

#### **California Proposition 65 Carcinogens and Reproductive Toxins**

This product can expose you to chemicals including those listed below, which is [are] known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

*TITANIUM DIOXIDE*

### Inventories

#### **Canada - DSL/NDSL**

All the ingredients are listed or exempt.

#### **US - TSCA**

All the ingredients are listed or exempt.

#### **US - TSCA 12(b) Export Notification**

None above reporting limits

### **16. Other information**

<b>Revision date</b>	4/1/2020
<b>Revision</b>	1
<b>Hazard statements in full</b>	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.